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**SUPPLEMENT 7
TO
JOINT EVALUATION OF
SOVIET MISSILE THREAT IN CUBA**

PREPARED BY

**Guided Missile and Astronautics Intelligence Committee
Joint Atomic Energy Intelligence Committee
National Photographic Interpretation Center**

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27 OCTOBER 1962

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NOTICE

Emphasis continues to be placed on the READINESS status, pace of construction and any significant changes at the offensive missile sites in Cuba. This report is based primarily upon detailed analysis of the 25 October low-altitude coverage (see Figure 1).

SUMMARY

1. Detailed analysis confirms the rapid pace of construction reported in our last supplement. As of [REDACTED] there was no evidence indicating any intention to halt construction, dismantle or move these sites.

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2. There are no changes in the dates of estimated operational capability for the MRBM and IRBM sites. Five of the six MRBM sites are now believed to have a full operational capability and the sixth is estimated to achieve this status tomorrow-[REDACTED] (see Figure 2). This means a capability to launch up to 24 MRBM (1020 nm) missiles within 6 to 8 hours of a decision to do so, and a refire capability of up to 24 additional MRBMs within 4 to 6 hours (see Table 1). within

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3. No additional MRBM missiles, missile transporters, or erectors have been identified (see Table 1). To date, we have observed a total of 33 MRBM missiles.

4. No IRBM missiles, missile transporters, erectors or associated equipment have been observed to date.

5. No new missile sites have been identified; there has been no high-altitude coverage suitable for searching the Remedios area for the suspect second IRBM site since [REDACTED] see Table 1 and Figure 1).

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7. Photography [REDACTED] confirmed the presence of a FROG missile launcher in a vehicle park near Remedios. (The FROG is a tactical unguided rocket of 40,000 to 50,000 yard range, and is similar to the U.S. Honest John).

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8. There has been no COMINT or other evidence of attempts at interdiction of U.S. reconnaissance aircraft.

9. Despite Krushchev's statement [REDACTED] of 24 October, we still lack positive evidence that nuclear weapons are deployed in Cuba.

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DISCUSSION

OFFENSIVE MISSILE READINESS (Figure 2)General

1. Previous reports have defined the two types of Soviet MRBM/IRBM operational capability as Emergency Operational Capability and Full Operational Capability. At this time five of the six MRBM sites have already achieved a full operational capability. The sixth site will probably be fully operational on 28 October.

2. As sites achieve a full operational capability, [REDACTED] reports indicate that a Soviet MRBM unit progresses through four readiness conditions as described in Figures 5, 5a and 5b. It is estimated that the Soviet MRBM can be held at Readiness 1 (30 minutes to Launch) for many hours.

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San Cristobal Area3. Site 1 (22-40-05N 83-17-50W)

Last coverage: Low-level [REDACTED]

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a. Readiness Status

This site has a full operational capability.

b. Supporting Evidence

Analysis confirms that all four launch stands and erectors are placed at prepared launch positions and cabling has been laid. Four probable theodolite stations have been identified in the launch areas. Of the eight previously identified missile transporters, only four are now visible. One of these has been moved to a new position near a missile-ready tent. A

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[REDACTED]

[REDACTED]

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cable extends from at least one of the missile-ready tents to probable generators in the woods. Construction of the security fence is essentially complete.

c. Significant Trends

Construction and continued site preparation is very evident. Covering or camouflage netting is being placed over most missile-associated equipment in the area.

4. Site 2 (22-41-00N 83-15-00W)

Last coverage: Low-level [REDACTED]

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[REDACTED]

a. Readiness Status

This site now has a full operational capability.

b. Supporting Evidence

All four erectors and launch stands are covered and are emplaced on prepared launch positions. All four hardstands for the missile transporter and for probable theodolite stations are under construction. Cabling is laid from three launch stands to probable control vans and generators. Darkness of photography precludes observation of cabling at the fourth launch position. Four missile-ready tents are complete and one is under construction. Cabling extends from two missile-ready tents to probable generators in the woods. Five fuel and 16 oxidizer trailers are located near one launch position. At one position a "cherry picker" is identified in the immediate launch area. No apparent effort has been made to camouflage equipment but canvas, which has been in place for some time, conceals small items.

c. Significant Trends

A more detailed analysis of photography shows that all launch positions are in an advanced state of preparation and that construction and missile preparation is continuing at a rapid rate.

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5. Site 3 (22-42-40N 83-08-25W)

Last coverage: Low-level [REDACTED]

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a. Readiness Status

This site is considered to have a full operational capability.

b. Supporting Evidence

No change since last report. As of [REDACTED] all four erectors and launch stands appeared to be in place at the prepared launch positions. Cabling was in position. Only four missile-ready tents had been erected. Construction activity was still continuing in the probable regimental support area adjacent to the launch site. Only four of the eight permanent barracks-type buildings were completed. Personnel were still quartered in tents. Four probable theodolite stations have been identified about 60 to 70 feet from the pads.

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c. Significant Trends

No propellant trailers had arrived at this site, and only one possible missile transporter had been observed. Although this site is estimated to have a full operational capability, missiles and propellants would have to be brought in from another location.

6. Site 4 (22-46-55N 82-58-50W)

Last coverage: [REDACTED]

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a. Readiness Status

This site will probably achieve full operational capability on [REDACTED].

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b. Supporting Evidence

No change since last report. However, available evidence at the other sites in this area tend to support the readiness estimate.

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c. Significant Trends

Low-level photography of [REDACTED] did not cover this site.

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Sagua La Grande

7. Site 1 (22-43-44N 80-01-40W)

Last coverage: Low-level [REDACTED]

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a. Readiness Status

This site is considered to have a full operational status.

b. Supporting Evidence

Previous coverage indicated completion of most launch facilities. Photography of [REDACTED] covers only one launch position which appears to be complete with erector, launch stand and installed cabling. A full complement of 8 fuel and 16 oxidizer trailers is present.

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c. Significant Trends

Construction activity and improvements appear to be continuing at this site.

8. Site 2 (22-39-10N 79-51-55W)

Last coverage: Low-level [REDACTED]

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a. Readiness Status

This site has a full operational capability.

b. Supporting Evidence

Four canvas-covered erectors and launch stands are emplaced on prepared launch positions with cabling in place. Three missile transporters and five missile-ready tents are now in the area. Two vans are parked

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[REDACTED] [REDACTED] [REDACTED]

near a group of three missile-ready tents. Two large ducts lead from the vans to the tents. These ducts may be for heating, airconditioning or dehumidifying the tents. A full complement of eight fuel and sixteen oxidizer trailers are present.

c. Significant Trends

Tall poles which are being erected at one launch position are probably intended to support camouflage netting which will cover the entire launch position. Site preparation and improvement is definitely continuing.

Guanajay Area

9. Site 1 (22-57-00N 82-39-25W)

Last coverage: Low-level [REDACTED]

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a. Readiness Status

It is estimated that this IRBM site will have an emergency operational capability on 15 November and full operational capability by 1 December providing construction activity continues as currently observed.

b. Supporting Evidence

Construction is continuing at this site. Concrete slabs are stacked near the probable location of a ready building and a mobile crane is nearby. Foundations have started for a second ready building. Two of the eight propellant storage tanks have been placed in an excavation at one of the pads.

c. Significant Trends

Preparation of the site is continuing.

10. Site 2 (22-57-25N 82-36-55W)

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a. Readiness Status

It is estimated that this IRBM site will have an emergency operational capability by 1 December and full operational capability by 15 December providing construction activity continues as currently observed.

b. Supporting Evidence

Construction continues at this site. The roof of the rectangular building near the pads is nearly complete. The concrete blocks in one wall of one of the control buildings are in place. The square concrete conduit segments have been put in one of the trenches. Two of the other trenches have these segments along side. Segments are brought to the site one at a time on trucks. There are 3 mobile cranes operating on site.

c. Significant Trends

Preparation of this launch site continues. Photography shows continuing activity and the presence of personnel at this site.

Remedios Area

11. Site 1 (22-25-00N 79-35-00W)

Last coverage: [REDACTED]

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a. Readiness Status

This site should have an emergency operational capability by 1 December and full operational capability by 15 December.

b. Supporting Evidence

No new photography of this site is available.

c. Significant Trends

Additional analysis of low-level photography of [REDACTED] shows an improved road with wide radius turns approximately 3 1/2 miles south-

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[REDACTED]

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east of this site. The road terminates at the edge of a wooded area which may possibly be the planned location for a second site in the Remedios area. The large amount of prefabricated concrete forms and other construction material in open storage areas would be adequate to support an additional site.

Command and Control

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NUCLEAR WARHEADS FOR OFFENSIVE MISSILES

13. Mr. Krushchev on 24 October in a private conversation with William Knox, President of Westinghouse International, claimed to have ballistic missiles with both conventional and nuclear warheads in Cuba at Soviet manned missile sites under his direct control. Previous statements by Mr. Krushchev on Soviet atomic energy matters provide no guide for determining whether this statement is true or not. In any case, we cannot establish the existence of Soviet nuclear warheads or nosecones in Cuba from examination of all information to date including low-level photography through [REDACTED]. Likewise, we have no evidence to support his statement that Soviet MRBM/IRBMs have conventional warheads.

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14. At the MRBM sites which are either considered to be operational or are approaching operational status both the nosecones and warheads should be readily available. The probable nuclear bunkers are not yet operational for storage, assembly or checkout. Although we have examined

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in low-level photography, tanks, vans, and other possible containers in the vicinity, we have not been able to identify the probable location of any nose-cone or warhead. Suitable sized containers and proper security both seem to be lacking.

15. If nosecones or warheads are in fact in the immediate area of the MRBM sites, they are probably in the missile checkout tents. Daytime photography has failed to reveal any warhead in transit in the immediate area. This suggests that if the warheads or nosecones are in the immediate area and have been moved about, such movement was done at night.

16. If the warheads are not yet in Cuba, it is still our opinion that the most likely means of transport is the TU-114 or its military version, the BEAR. A further examination of this possibility has indicated that the normal passenger type of TU-114 has [REDACTED]. Therefore, to handle a crated warhead it would appear necessary to use either a recently modified TU-114 or a possible cargo version.

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Supply and Logistics

17. A Soviet IL-18, a large jet transport, was scheduled to depart Moscow on 25 October. Its projected arrival time in Havana is 0500Z, 28 October. Stops are expected at Belgrade, Rabat, Conakry and Recife.

Coastal Defense

No change

Air Defense Missiles

18. Photography processed during the last day shows that construction activity is continuing on the surface-to-air (SA-2) sites in Cuba. There is no change in the operational status of the 24 primary SA-2 sites.

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19. Of special significance is the probable identification of a MERCURY GRASS communications van and antenna at San Julian from low-level photography of [REDACTED]. This communication system is used to transmit early warning data to the SA-2 sites and provides intersite command and control communications for an SA-2 regiment (4 firing sites and one support/assembly area). Intercept of this system can prove difficult because its transmissions are directional. This is the first MERCURY GRASS site observed in Cuba.

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20. A SPOONREST acquisition and warning radar has been identified at the Bahia Hondo SA-2 site from low-level photography of [REDACTED]. [REDACTED] SPOONREST signals were intercepted from this general area on [REDACTED]. [REDACTED] Six SPOONREST radars have been seen thus far and three have been intercepted by ELINT.

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21. A detailed analysis of the 24 individual SA-2 sites shows that they were chosen so as to have negligible masking of their radio horizon by local obstacles and terrain. This enhances their early acquisition and detection capability. Maps on a scale of 1:50,000 were used for this analysis which showed that most of the residual masking is caused by distant mountains. Twenty three of the sites do not have a mask which exceeds 4 degree elevation. Fourteen of the sites do not have a mask which exceeds one degree elevation. The results of the analysis are summarized in Table 4.

Tactical Missiles

22. Low-level photography has provided the first confirmation of FROG missile launchers in Cuba which were previously reported by refugees. This is an unguided missile similar to the Honest John system, and has a range of about 50,000 yards. This launcher, probably for the FROG 3 or 4 missile, was parked in a vehicle park 5 kilometers south of Remedios adjacent to a vehicle which may be its missile transporter. (see Figure 9).

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ADDENDUM

Low altitude missions of [REDACTED]

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Only partial coverage of MRBM and IRBM sites has been scanned. The following tentative conclusions may be drawn from a very preliminary analysis.

1. There are indications of continuing construction at Guanajay IRBM sites 1 and 2. Coverage of Remedios sites has not been scanned.

2. The limited evidence available indicates that construction and readiness preparation at all of the MRBM sites is continuing.

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TABLE 1

SUMMARY OF MRBM AND IRBM THREAT IN CUBA

Status as of 0200 hours on 27 October 1962

| Locations | Sites | | Launchers | | Missiles | |
|--|------------------|------------------|----------------------|--------------------|------------------|-------------------|
| | Total Identified | Probably Planned | Total Identified | Probably Deployed* | Total Identified | Prob Basic Load** |
| <u>MRBM - Range 1020-nm (non-rotating earth)</u> | | | | | | |
| San Cristobal (2 regts) | 4 | 4 | 15 | 16 | 23 | 32 |
| Sagua La Grande (1 regt) | 2 | 2 | 8 | 8 | 10 | 16 |
| MRBM TOTAL | 6 | 6 | 23 | 24 | 33 | 48 |
| <u>IRBM - Range 2200-nm (non-rotating earth)</u> | | | | | | |
| Guanajay (1 regt) | 2 | 2 | 8 under construction | 8 | 0 | 16 |

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TABLE 1 (Continued)

| Locations | Sites | | Launchers | | Missiles | |
|----------------------|------------------|------------------|--------------------------|--------------------|------------------|-------------------|
| | Total Identified | Probably Planned | Total Identified | Probably Deployed* | Total Identified | Prob Basic Load** |
| Remedios (1 regt) | 1 | 2 | 4 under construction | 8 | 0 | 16 |
| IRBM TOTAL | 3 | 4 | 12 under construction | 16 | 0 | 32 |
| GRAND TOTAL | 9 | 10 | 35 | 40 | 33 | 80 |

* This reflects an estimate of 8 operational launchers authorized per regiment.

** This reflects an estimate of 16 operational missiles per regiment.

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TABLE 2

TABULATION OF EQUIPMENT AT SOVIET MRBM SITES IN CUBA
Status as of 0200 hours 27 October 1962

| Authorized Equipment (Estimated) | Missile Transporters | Erectors | Launch Stands | Fuel Trailers | Oxidizer Trailers | Missile-Ready Tents | Theodolite Stations | Electronics Vans | Generators |
|-------------------------------------|-------------------------|----------|---------------|---------------|----------------------|------------------------|------------------------|---------------------|------------|
| San Cristobal Area | | | | | | | | | |
| Site 1 | 8/5 | 4/4 | 4/4 | 8/8 | 16/16 | 7/7 | 4/4 | 10/10 | 6/6 |
| Site 2 | | | | | | | | | |
| Site 2 | 6/3 | 4/4 | 4/4 | 6/4 | 16/16 | 5/5 | 4/4 | 0/0 | 1/1 |
| Site 3 | 2/1 | 4/4 | 3/3 | 0/0 | 0/0 | 4/4 | 3/3 | 0/0 | 2/2 |
| Site 4 | 7/7 | 4/4 | 0/0 | 0/0 | 7/7 | 0/0 | 0/0 | 0/0 | 0/0 |
| Sagua La Grande Area | | | | | | | | | |
| Site 1 | 6/5 | 4/2 | 1/1 | 8/8 | 16/16 | 3/1 | 1/0 | 3/1 | 0/0 |
| Site 2 | 4/3 | 4/4 | 3/3 | 8/8 | 16/16 | 5/5 | 2/2 | 1/1 | 5/5 |
| TOTALS | 33/24 | 24/22 | 15/15 | 30/28 | 71/71 | 24/22 | 14/13 | 14/12 | 14/14 |

NOTE: a/b a - Highest number observed at any one time.
b - Number observed last time site was covered (see Figure 1).

Dense foliage and camouflage precludes the positive identification of some vehicles.

TABLE 3

PROGRESS OF CONSTRUCTION AT SOVIET IRBM SITES
Status as of 0200 hours 27 October 1962

| | Launch Pads | Control Buildings | Fuel Storage Tanks | Warhead Bunkers | Missiles | Erectors | Missile Ready Buildings | Cable Trenches | Fencing |
|-----------------|-------------|-------------------|--------------------|-----------------|----------|----------|-------------------------|----------------|---------|
| Guanajay Site 1 | 4 u/c | 2 c | 8 | 1 u/c | - | - | 2 u/c | c | c |
| Guanajay Site 2 | 4 u/c | 2 u/c | - | - | - | - | - | u/c | c |
| Remedios Site 1 | 4 u/c | 2 u/c | 8 | 1 u/c | - | - | - | u/c | u/c |

u/c - Under construction
c - Complete

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TABLE 4

RADIO HORIZON LIMITATIONS AT PRIMARY SA-2 SITES

| Site | Height Above Sea Level (Meters) | Distance From Coastline (KM) | Elevation of Highest Masks |
|------------------|------------------------------------|---------------------------------|-------------------------------|
| Chaparra | 30 | 18 | less than 1° |
| Ciego De Avila | 15 | 9 | less than 1° |
| Deleite #1 | 35 | 11 | less than 1° |
| Esmeralda | 25 | 22 | less than 1° |
| Havana East | 50 | 3 | less than 1° |
| La Coloma | 15 | 9 | less than 1° |
| Los Angeles | 120 | 7 | less than 1° |
| Manati | 30 | 20 | less than 1° |
| Manzanillo | 80 | 6 | less than 1° |
| Mariel | 25 | 1 | less than 1° |
| Mantanzas | 45 | 2 | less than 1° |
| Sagua La Grande | 5 | 10 | less than 1° |
| San Julian | 15 | 18 | less than 1° |
| Senado | 30 | 15 | less than 1° |
| Caibarien | 20 | 7 | 1.1° |
| Chambas | 30 | 18 | 1.7° |
| Bahia Hondo | 10 | 1 | 1.9° |
| Jiguani | 140 | 47 | 1.9° |
| Cienfuegos | 40 | 2 | 2.1° |
| Santa Lucia #1 | 10 | 2 | 2.2° |
| Santiago De Cuba | 90 | 2 | 3.2° |
| Cabanas | 50 | 20 | 3.3° |
| Sancti Spiritus | 70 | 19 | 3.7° |
| Seguena | 20 | 3 | 7.1° |

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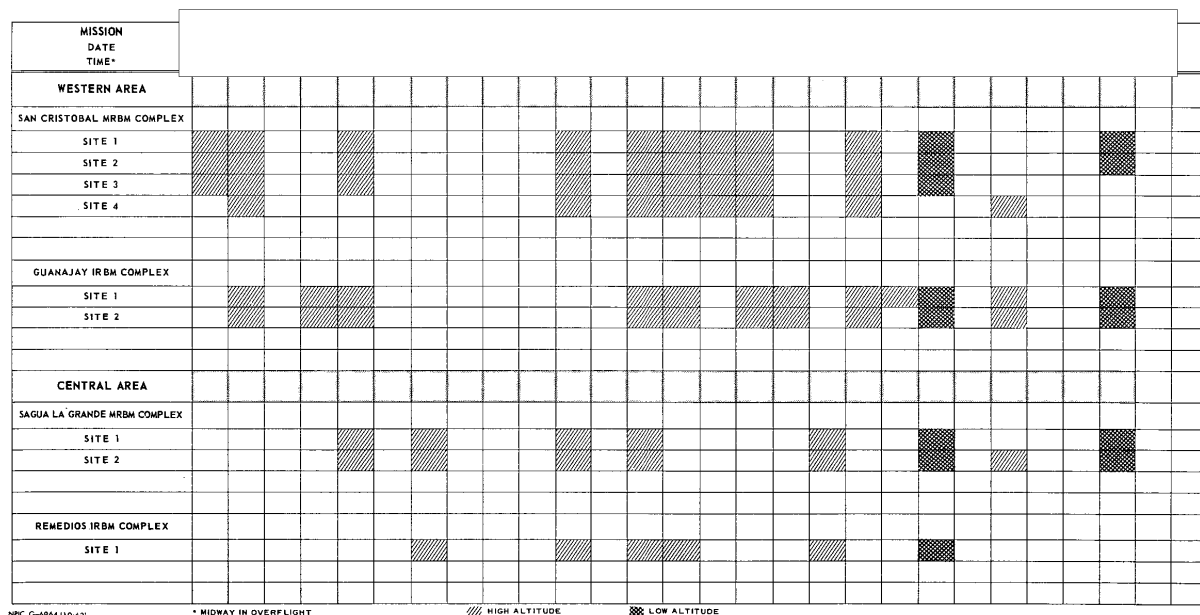
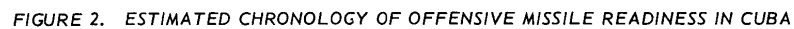


FIGURE 1. SUMMARY OF PHOTOGRAPHIC COVERAGE OF OFFENSIVE MISSILE SITES IN CUBA.



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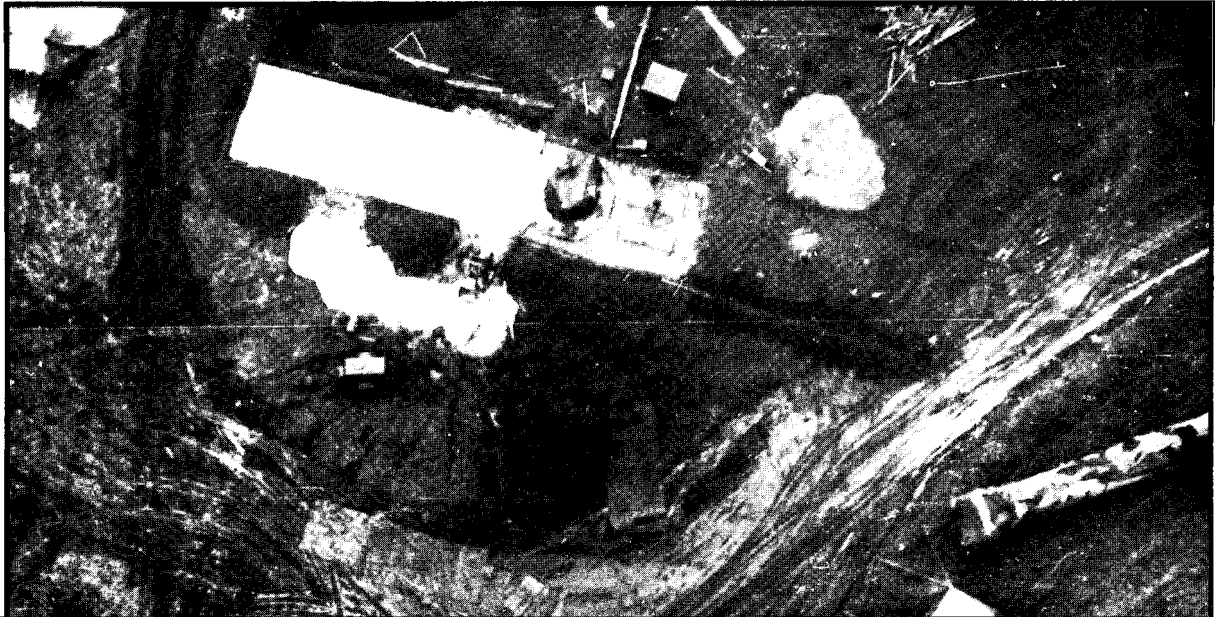
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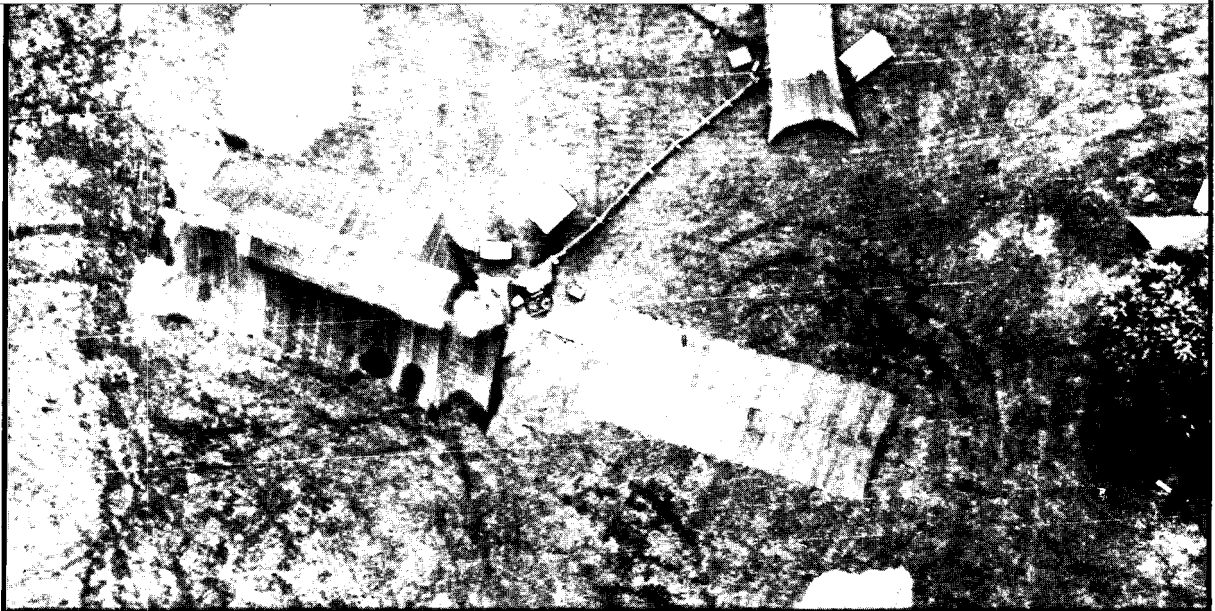
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FIGURE 4. LAYOUT AND EQUIPMENT OF A SOVIET MRBM AREA, CUBA.

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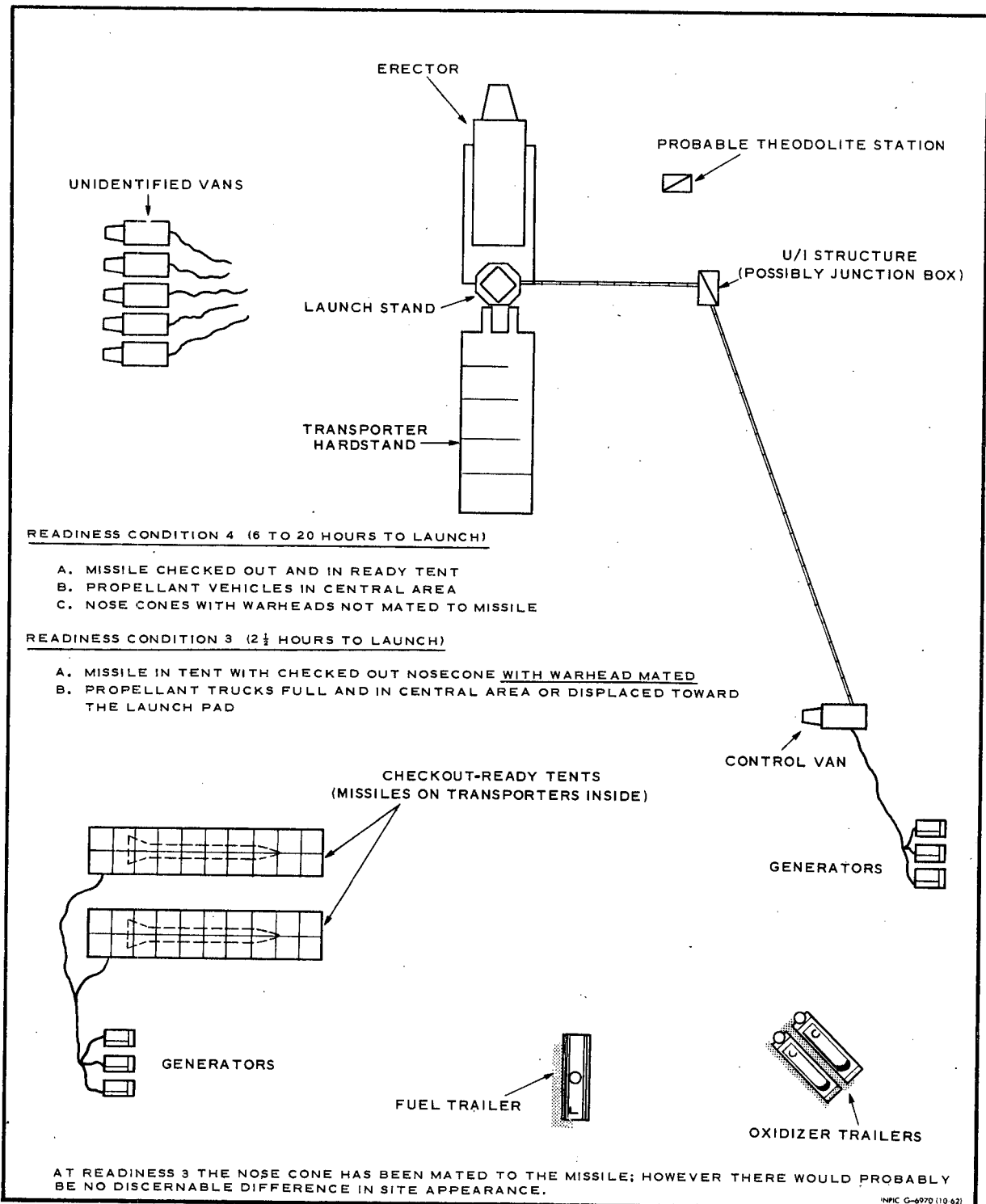


FIGURE 5. PROBABLE APPEARANCE OF FULLY ORGANIZED MRBM LAUNCH POSITION AT READINESS CONDITIONS 4 AND 3 (As derived from [] reports).

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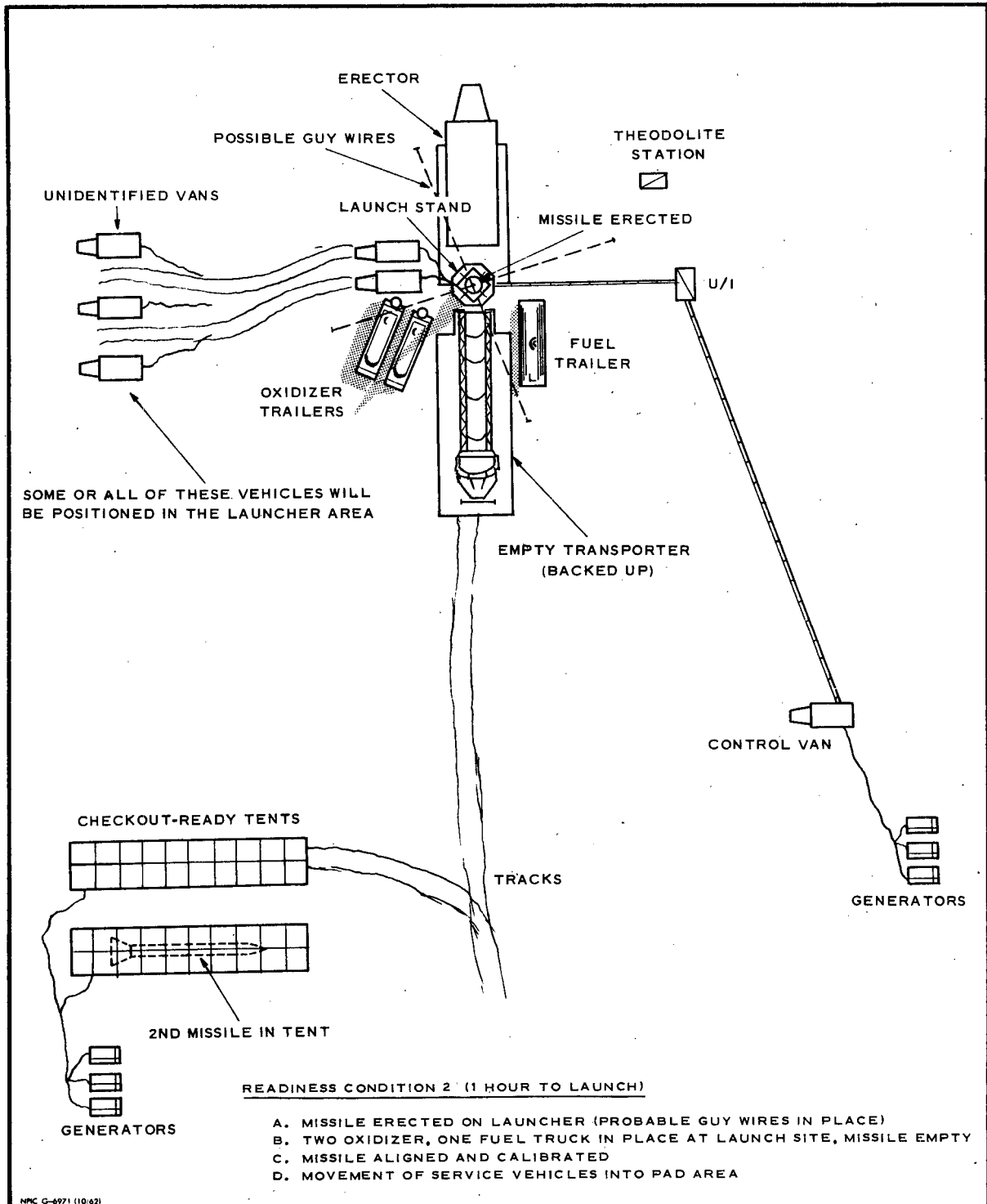


FIGURE 5a. PROBABLE APPEARANCE OF FULLY ORGANIZED MRBM LAUNCH POSITION AT READINESS CONDITION 2 (As derived from reports).

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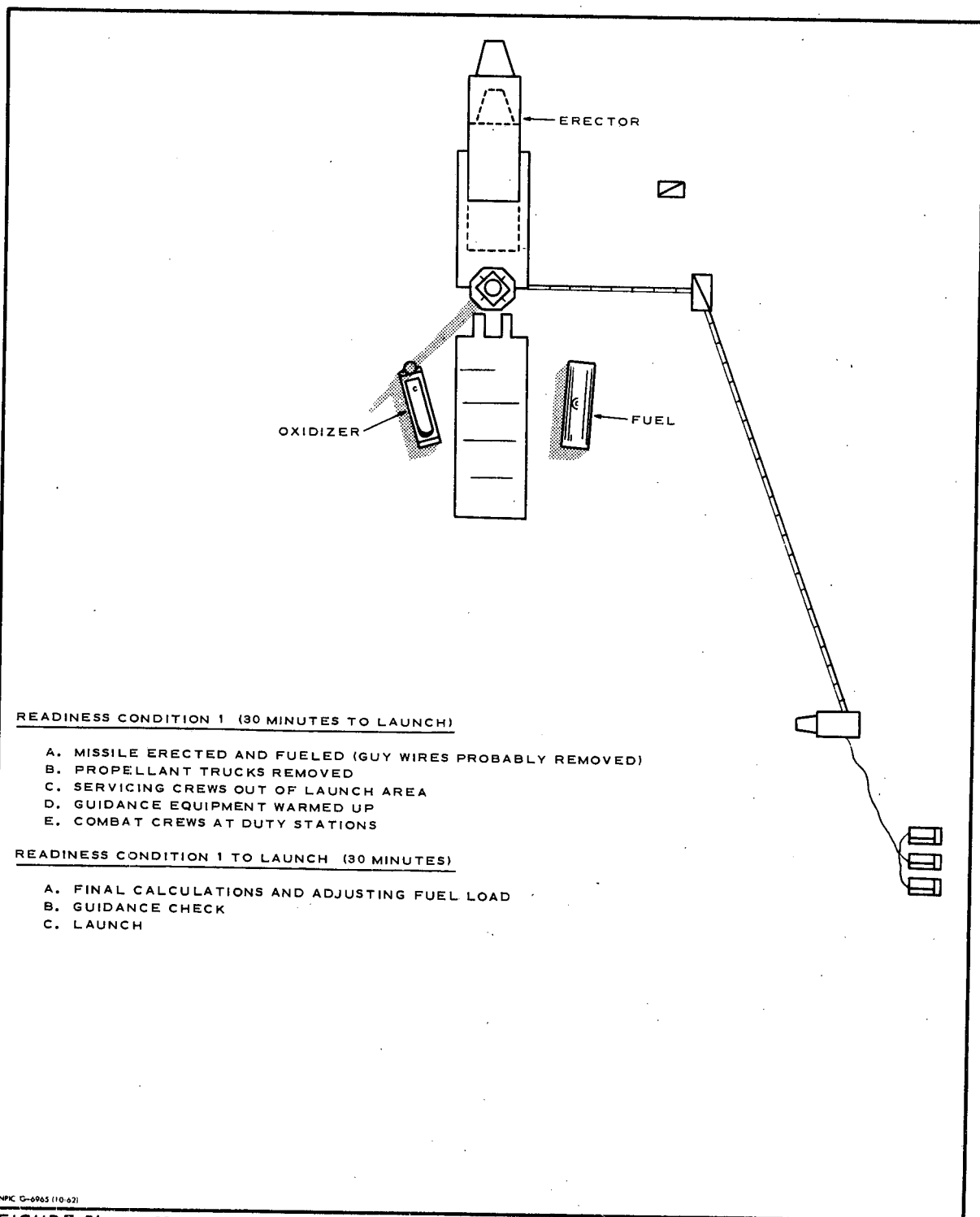


FIGURE 5b. POSSIBLE APPEARANCE OF FULLY ORGANIZED MRBM LAUNCH POSITION AT READINESS CONDITION 1 (As derived from reports).

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FIGURE 6. SAN CRISTOBAL MRBM LAUNCH SITE 1.

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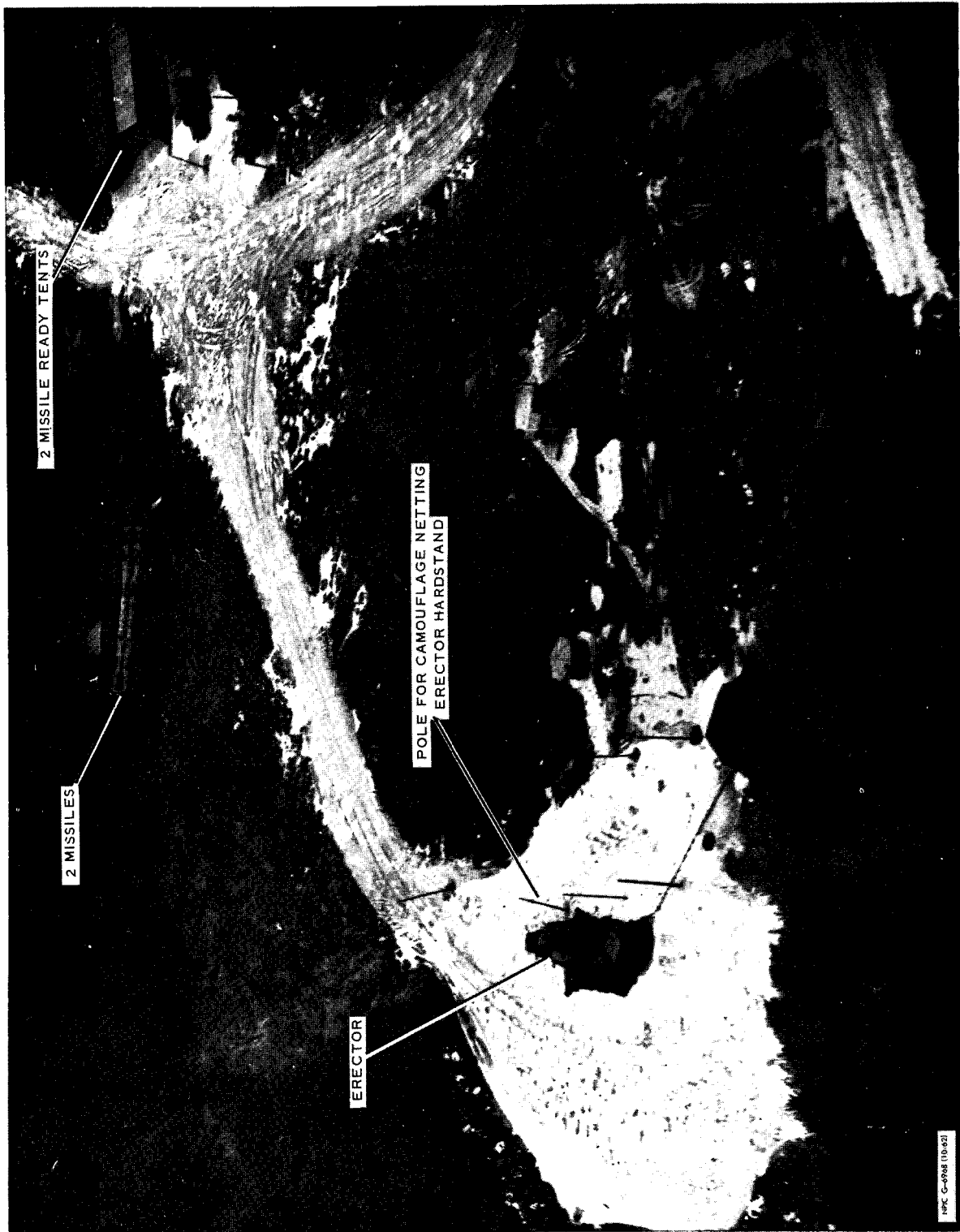
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FIGURE 7. SAGUA LA GRANDE MRBM LAUNCH SITE 2,

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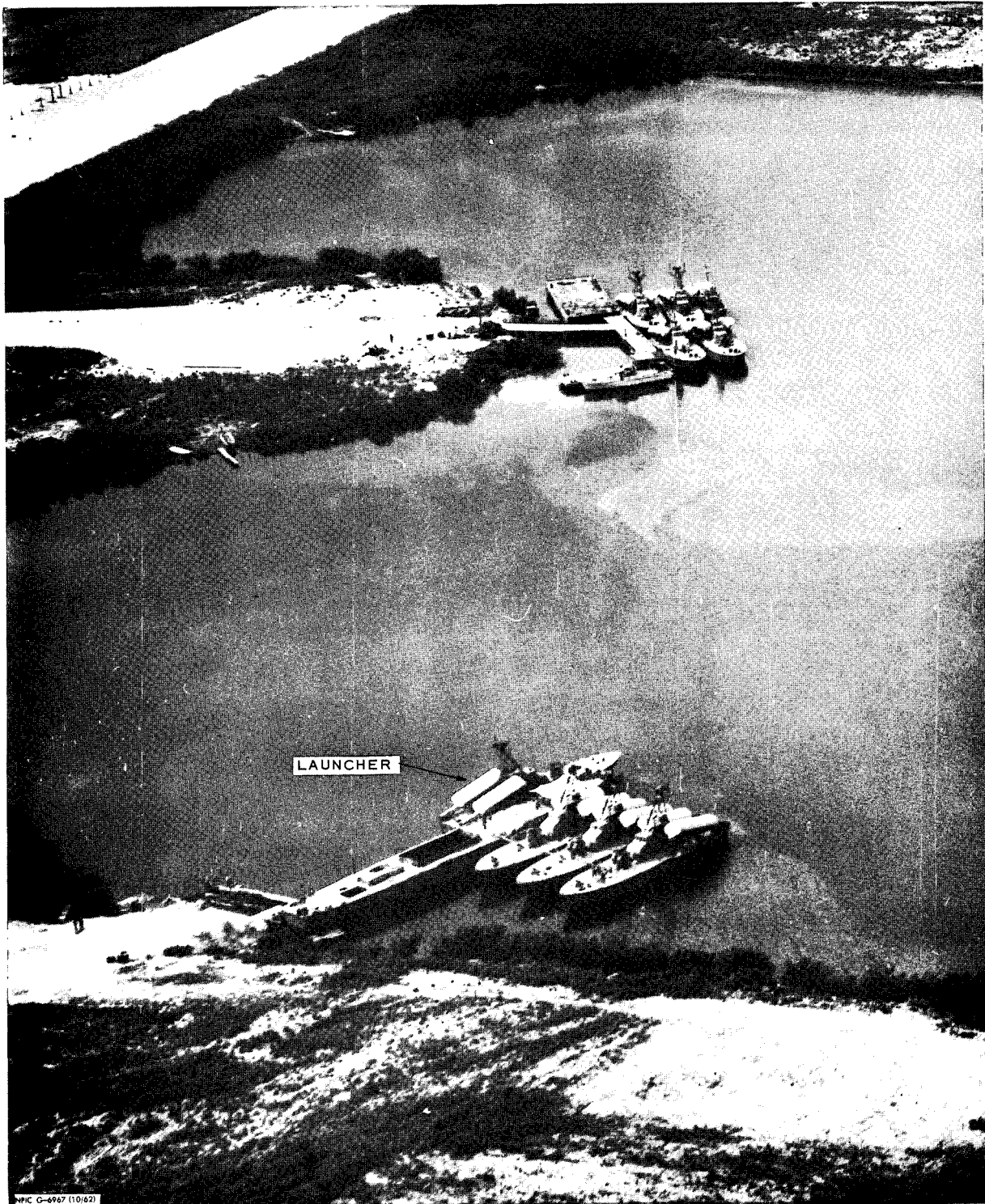


FIGURE 8. KOMAR CLASS PGMG BOAT, MARIEL PORT, CUBA,

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FIGURE 9. FROG UNGUIDED MISSILE IN VEHICLE PARK, REMEDIOS AREA.

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